TRADITION INVESTMENTS, LLC
15857 Bear Mountain Boulevard
Bakersfield, CA 93311

April 26, 2010

VIA Email to: Gluckman.Matthew@epa.gov
Hard copy by Certified Mail
Electronic Information Via. UPS Next Day Air

U.S. Environmental Protection Agency
Attention: Matt Gluckman
NPDES Programs Branch
Water Division, WN-16J
77 West Jackson Blvd.
Chicago, IL 60604

Re: Response to Supplemental Information Request Made Pursuant to Section 308 of the Clean Water Act; Traditions South Dairy, Nora, Illinois. Docket No. V-W-10-308-16

Dear Mr. Gluckman:

On behalf of Tradition Investments, LLC ("Tradition"), the following is provided in response to USEPA's Supplemental Information Request ("Requests") regarding the above-referenced site. These responses will be timely supplemented if additional responsive information is discovered.

PRELIMINARY STATEMENT AND GENERAL OBJECTIONS

Preliminary Statement

The following people were consulted in preparing answers to this information request:

Terry L. Feldmann, PE *
James L. Evans, PE *
Jason E. Olmstead, PE *
c/o Maurer-Stutz, Inc.
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Peoria, IL 61615
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Exemption (b)(6)

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* Denotes NRCS certified technical services providers for CNMPs and other conservation practices.

General Objections

Tradition objects to the Requests to the extent that they seek information or documents protected by the attorney-client privilege or the attorney work-product doctrine or are otherwise privileged and confidential and qualify for an exemption from disclosure. Tradition further objects to the Requests to the extent they seek information from sites or locations other than the Dairy or are vague, ambiguous, overbroad or require conjecture or presume the discharge of pollutants to surface or groundwater. To the extent responses to the Requests require estimates, Tradition has made a good-faith estimate based on the information and scientific methodology available to it. The facility at issue is the Traditions South Dairy facility located at 12521 East Mahoney Road, Warren, Illinois. Tradition objects to the Requests to the extent they seek information that is not within Tradition's care, custody or control or involve a site or location other than the Tradition South Dairy site.

Tradition has made a reasonable effort to locate documents responsive to the Requests. Response items or documents have been labeled for each question requested (e.g., Q9 for supplemental information request question 9). Some of the information relating to the SPAW modeling is being supplied electronically only on a diskette as the number of pages is enormous.

Tradition makes these responses subject to, and without waiving, any and all rights, defenses or privileges applicable or potentially applicable thereto. Without waiver of any of the foregoing reserved rights, privileges or defenses, and subject to the general objections above, Tradition hereby responds as follows:

A. INFORMATION REQUEST

Manure and Wastewater Storage Capacity

1. Please provide the capacity (volume) and Expected volume of manure and process wastewater to be delivered to the following:

- **The two reception tanks associated with the manure transfer system**
- **The reception tank associated with the solid/liquid separation facilities**
- **The lift stations**
- **The digester**

Response:

The above mentioned components are part of the facilities manure transfer or treatment systems and are not accounted for or relied on for the storage of manure and process wastewater. The function of these systems is listed below:

- Lift stations P18 and P19 receive process wastewater from the foot baths located in the holding pen, P7. The combined capacity is 3140 cubic feet. These two tanks are planned to be connected to reception tank P28 with a gravity flow pvc pipe. Each footbath will typically contain 12 cubic feet. We estimate that P18 and P19 will hold the volume of 250 footbath emptying events.

- Reception tank P28 receives manure and process wastewater from the parlor and holding pen. The tank is designed with two pump systems, one that is used to "pump" flush the holding pen and a second to transfer manure and process wastewater to the west 24" diameter gravity flow flume pipe. In case of a power or pump failure the tank P28 has a 15" diameter emergency overflow pipe that connects to the west 24" diameter flume pipe. The volume of P28 is approximately 2880 cubic feet. The volume of waste received by P28 is approximately 36,000 gallon per day as shown in our AWM (Animal Waste Management) calculations (wastewater produced sheet) previously provided.

- Reception tank P27 receives manure and process wastewater from the barns through the two 24" diameter PVC flume pipes (east and west sides of the facility) and from reception tank P28. The tank is designed with two submersible pumps that will be used to pump flush the east and west 24" diameter flume pipes. A dry well located in the west end of the reception tank house four positive displacement pump system that will be used to pump all of the manure and process wastewater to the digester. In case of power or pump failure P28 has a 24" diameter PVC emergency overflow pipe that is designed to gravity flow to earthen holding pond P14. The volume of P28 is approximately 45,000 cubic feet. We estimate that P27 will receive approximately 16,924 cubic feet per day on average as shown on our AWM calculations (Facility Volumes sheet) as it receives essentially everything except the runoff volume.

- Reception tank P25 receives manure and process wastewater from the solid/liquid separation system which processes the digested effluent from P23. The tank is designed with a pump and PVC forcemain pipe system that transfers the effluent to holding pond P14. In case of power or pump failure the tank also has an 8" diameter emergency overflow pipe to transfer to earthen holding pond P14. The volume of P25 is approximately 9128 cubic feet. We estimate that P25 will receive approximately 16,142 cubic feet per day on average as shown on our AWM calculations (Facility Volumes sheet) as it receives essentially everything except the runoff volume and bedding/solids removed volumes.

- See additional plans included with this response for P23, concrete methane Digester. Digester P23 receives manure and process wastewater from reception tank P27 that we estimate to be 16,924 cubic feet per day. The digester is designed with a submersible pump and PVC forcemain system that will be used to transfer effluent from the digester to the solid/liquid separation system in P25. In case of power or pump failure the tank also has an 8" diameter PVC emergency gravity flow pipe designed to transfer effluent by to earthen holding pond P14.

2. **Please clarify whether and how the runoff volume for the 25-year, 24-hour storm is accounted for in the animal waste management (AWM) model results for holding pond 3 (P17).**

   Response:
   The calculated runoff volume for the 25-year, 24-hour storm can be found on the bottom half of the runoff calculations sheet of the AWM (113,647 cubic feet). This runoff volume can also be found on the bottom of the Holding Pond 3 design sheet, P17 page of the AWM.

3. **Please clarify the existence and function of the "Covered Stack Pad 2, P5." If used for storage of manure, verify that no runoff or leachate is expected from the area or specify how runoff and/or leachate will be managed.**

   Response:
   The waste storage area "Covered Stack Pad 2, P5" is the bedpack area located inside of barn P5. The bedpack area is under roof, protected from precipitation and storm events. Any leachate from the bedpack area will be collected with the scrape alleys within the barn and transferred to the 24" diameter PVC, gravity flow flume pipe system.

4. **Please clarify the amount of wastewater and manure that will be generated and the ultimate use or disposal for each. If the annual volume or mass planned for use or disposal is less than the anticipated volume or mass generated, explain the storage and management planned for the manure and wastewater not used or disposed of.**

   Response:
   The amount of wastewater and manure generated equals the amount to be used or sold. Most of the volume or mass generated will be land applied. A portion of the separated solids will be sold for bedding or otherwise transferred offsite. The solids/bedding to be sold or otherwise transferred offsite is estimated to be 3300 Tons/year. A relatively small amount is destroyed by digester P23 to produce methane. We estimate that about 240,000 cubic feet of volatile solids per year are destroyed in the digester. The manure and process wastewater generated to be land applied to application fields are as follows:
   - Liquid: 54 million gallons/year

- Solid: 1100 tons/year

The following nutrients are estimated to be transferred offsite annually with the sale of bedding/solids: 24,000 lb of nitrogen, 41,000 lbs of P2O5 and 17,000 lb of K20.

The manure and process wastewater nutrients generated to be land applied to application fields after storage and application losses are as follows:

- Liquid:
  - Total N = 957,000 lb/yr
  - Total P2O5 = 700,000 lb/yr
  - Total K2O = 875,000 lb/yr
- Solid:
  - Total N = 11,000 lb/yr
  - Total P2O5 = 3300 lb/yr
  - Total K2O = 6600 lb/yr

Soil Plant Air Water (SPAW) Pond Hydrology

5. **Please provide an electronic version of the SPA W Annual Budget output report for the pond hydrology model scenarios provided in the August 2009 Response.**

   Response:
   Electronic files for the annual and daily output reports can be found on the CD, and called TSD Ponds Annual Out and TSD Ponds Out. The daily output file, TSD Ponds Out is several hundred pages.

   Also included on the CD, is the project Folder TSD Ponds. If loaded in the SPAW database and if the "Concrete Silage Pad" field project is also loaded in the SPAW database, the pond model can be opened and a simulation performed (if necessary) and any report can then be viewed. For the purposes of checking the SPAW model inputs on the pond model, paper printed "screen shots" populated for TSD Ponds model are attached with this response.

6. **Please provide an electronic version of the SPAW Input Data File report for the pond hydrology model scenarios provided in the August 2009 Response. Describe how the pond depth-area inputs are used to accurately reflect the cumulative capacity of the three holding ponds.**

   Response:
   Electronic files for TSD Ponds model are included on the above referenced CD.

   The depth-area table populated in the TSD Ponds model reflects the total surface area of the three ponds at any given elevation/stage. Planned bottom elevations of the three ponds are different. An area was included for the elevation that represented the lowest point for each pond. The emergency spillway elevation for all three ponds is 990.8.

The lowest elevation in the lowest pond is 970.0. Cross over pipes are at elevation 988.3 and connect P14 to both P17 and P16. The top of berm is not lower than 991.3 for all ponds.

The attached Table, Stage vs Storage for TSD Ponds P 16, 17 and 14, shows the lowest elevation of each pond, area for each pond at each elevation and total area at each elevation.

Ponds P16 and P17 can fill at the same time. Pond P14 is for primary settling of solids, and may be full to the cross over pipes most of the time. The most conservative scenario for pond storage would be to exclude P14 from volumes available for storage. TSD Ponds was re-simulated with the depth area table changed to eliminate area(s) in P14. That scenario is included in the CD as the project TSD Ponds w/o P14. Also, attached, is a graph of pond elevations for the years 1980 to 1999. This graph corresponds to one page of the output provided in the 2009 response. Note that the difference in maximum pond elevations is not significantly changed from TSD Ponds – both maximums appear to be about elevation 987, or 3.8 feet below the spillways.

Land Application

7. **The planned frequency for emptying or dewatering of manure and process wastewater containment, storage and treatment structures is unclear based on a comparison of the information provided in Tradition South's August 2009 response, the NMP, and the Operation and Maintenance Plan. Please clarify the planned frequency tor emptying or dewatering the holding ponds.**

   Response:
   Liquid effluent applications from containments P14, P16, and P17 are planned to be emptied at least once every 12 months. Most liquid applications are planned for September through November. However, applications during other months of the year will be allowed if soil and weather conditions are appropriate.

   Solid manure applications are planned at least once every 6 months. Most solid manure applications will occur in the fall and spring. However applications will occur at other time of the year if weather and soil conditions are appropriate.

8. **Please provide location data for each planned land application site (i.e. latitude and longitude for the comers of each field).**

   Response:
   The soil survey maps for each field show the locations (i.e. latitude and longitude). While many of the maps were provided previously, all of the fields can be found on the attached CD.

9. **Please clarify the following with respect to any silage leachate that was applied by Traditions South:**
   - **Dates of application (including year)**
   - **Weather conditions and soil conditions (i.e., saturated, snow-covered or frozen) for the dates of land application**
   - **Field(s) used tor land application**
   - **Crop(s) grown in the fields used tor land application**
   - **Nutrient content of the material that was applied.**

Response:
See attached page showing the above information for applications of leachate and runoff applied. The source and nutrient content is assumed to be about the same for all of the material applied. The nutrient content is as follows: Ammonia N = 97.6 ppm, Phosphate = 160 mg/l, Potassium = 275 mg/l.

SPAW Field Hydrology

10. **Please provide information on the physical characteristics entered tor the modeled soil types (Osco, Muscatine. Sable) utilized in the August 2009 Response. For each soil layer provide depth; percent sand, clay, organic matter. gravel; bulk density; and hydrologic group.**

Response:
Included in the CD, in the Soils folder, are data files for each soil used in the field projects in the initial SPAW Hydrology modeling, as well as for two additional soils (Greenbush and Rozetta) which were modeled for this response. Also, find attached screen shots of the soil data screens for each soil modeled which contain the requested characteristics. Also attached find a file for "Building Roof" which is an example file contained in SPAW and which was used to simulate an impermeable surface – concrete silage pad.

11. **Please clarify whether and how the three modeled soils utilized in the August 2009 response adequately represent the range of soil types that exist in the planned land application areas, particularly for those fields that are not dominated by one of the three modeled soils.**

Response:
Subsequent to EPA's request for additional information, a more extensive evaluation of soils in fields owned or controlled by Tradition Family Farms was conducted. See the attached Table Tradition Dairy – Soils. This table lists all soils found on the 18 tracts (40 fields) owned or controlled by Tradition Family Farms.

Note that Osco and Muscatine acreages are > 60% of all the acres in the 18 tracts. Osco and Muscatine are also the dominant soils on 11 of the tracts. However, since Greenbush and Rozetta are dominant on 6 tracts, they were also modeled for this response. The only tract not dominated by one of these 4 soils is a 6.7 acre tract (1

field) that is 40% Dubuque soil type, which is a Hydrologic Group B soil and very similar to the other 4 silt loam soils modeled.

The 4 soils modeled for this response (Osco, Muscatine, Greenbush and Rozetta) comprise > 75% of the acreage in the 18 tracts owned or controlled by Tradition Dairy.

12. **Please provide model results for planned crop rotations, or describe whether and how the modeled crops or rotations utilized in the August 2009 response are representative of the actual planned rotations.**

Response:
The nutrient management plan for Tradition South Dairy proposes to utilize effluent from ponds in the fall, on acres that will be planted to corn, or on pasture/hayland. Corn ground will either be in a corn – corn rotation or a corn – soybean rotation. The model results submitted are for application in October or May. Because there may be occasions when the producer will choose to utilize effluent on soybeans, application was modeled on corn, soybeans and pasture/hayland.

The initial comparison between a no irrigation condition and the application of 0.67 inches of effluent in the fall were made for Osco soils and for corn, soybeans and pasture/hayland. Though only slightly greater, the increase in runoff (average annual) was greatest (0.06 inch for corn vs. 0.05 inch for soybeans) for application on corn. Initial modeling on other soil types was only for fall application on corn.

13. **Please provide model results tor corn silage, or describe whether and how the modeled corn crop utilized in the August 2009 response is representative of rotations that include corn silage.**

Response:
The original SPAW database does not provide a specific file for corn silage. Crop growth and canopy for both silage and corn grain are the same. Both are row crops and fields in corn, with minimum tillage would be considered in good hydrologic condition, so the runoff curve number generated by SPAW would be the same. The data set used for corn was "Example Corn – Corn Belt", and is contained in the "Crops" folder in the CD.

14. **Please provide model results showing the expected runoff and infiltration for the maximum planned application rates tor each field to be used for land application.**

Response:
Attached find Summary(s) of Annual Values for Osco soil type with corn, soybeans and pasture and for 0.67 inches of irrigation in one day in October to November or in May. The other three soils are only modeled for corn, but do include both fall and spring application scenarios.

Also attached find the table "Tradition South Dairy – SPAW Field Results".

The application of 0.67 inches of effluent in one day is equivalent to approximately 18,000 gallons per acre. This rate exceeds any recommended rate in the nutrient management plan for Tradition South Dairy. A more usual rate would be less than 9,000 gallons per day, or 0.33 inches of effluent.

The original hydrology (Fields) has been modified to specify application on days when no rainfall occurs, as per Best Management Practice recommendations.

The table "Tradition South Dairy – SPAW Field Results" shows that the maximum increase in average annual runoff from the application of 0.33 inches of effluent, in the fall, on corn is 0.04 inches. The maximum increase in average annual runoff would be from application of 0.67 inches of effluent to soybeans in the spring, and is 0.11 inches. However, the application of effluent to soybeans in the spring, at that rate, is not recommended in the nutrient management plan.

Application of effluent by injection (drag hose or tanker) would preclude runoff of effluent.

The CD includes Project files (Fields) for all crops and soils and irrigation dates and rates shown in the table "Tradition South Dairy – SPAW Field Results". Those project files can be opened in SPAW and reports can be viewed/printed.

Hydrologic Connection

15. **For at least one borehole location within the footprint of each of the two larger holding ponds (P16 and PI7), please provide data on the thickness of the natural clay liner in the overburden, and whether the underlying bedrock is shale or fractured limestone.**

    Response:
    See previously submitted documents including boring logs and Construction Plans Sheet C3 "Grading Plan" for boring locations. Borings S10 and S13 are located within holding pond P14. Borings S14, S15 and S16 are located within holding pond P16. Borings S9 and S18 are located within holding Pond P17. Additionally, the following borings are located near the exterior of the holding ponds S7, S8, S11, S12, S17, S17A and S17B (note 17, 17A and 17B were performed at essentially the same location). The bedrock found at the Tradition South facility is a dolomite limestone.

16. **For each of the Holding Ponds (PI4, P16, PI7), please provide Soil Water Characteristic Curves for the liner and native clay materials based on grain size, density, moisture content of the materials. Please also provide hydraulic conductivity (saturated and unsaturated) and porosity estimates for the liner and native clay materials.**

    Response:

Please refer to the boring logs with tests previously submitted including USCS visual classifications, unconfined compressive strength, SPT-N blows per foot, water content (moisture), dry unit weight (density), atterberg limits (liquid and plastic limit, plasticity index). Borings S10 and S13 are located within holding pond P14. Borings S14, S15 and S16 are located within holding pond P16. Borings S9 and S18 are located within holding Pond P17. Additionally, the following borings are located near the exterior of the holding ponds S7, S8, S11, S12, S17, S17A and S17B (note 17, 17A and 17B were performed at essentially the same location). Also see the following additional data attached to this response: Standard Proctor Moisture-Density Curves with Atterberg Limits and Constant Head Permeability Tests for remolded bulk soil samples and (Terracon report numbers 07075126.0001, 07075126.0002); Triaxial Shear Test reports by Terracon's H. C. Nutting Company which includes atterberg limits, water content, dry density, saturation and void ratio; Terracon report 07082013.0002 showing moisture-density Standard Proctor curve and Coefficient of Permeability on a remolded sample; Terracon report 07082013.0009 showing coefficient of permeability on three different in-situ soil samples via. thin walled Shelby tubes; Terracon report 07082013.0011 shows Atterberg limits for soil samples from P17, Terracon report 07082013.00063 shows Atterberg limits and a Moisture-Densisty Standard Proctor Curve for soils used for compacting the clay liner in holding pond P14; Terracon report 07082013.00065 shows a Moisture-Densisty Standard Proctor Curve for soils used for compacting the clay liner in holding pond P14; Terracon report 07082013.00072 shows Atterberg limits and a Moisture-Densisty Standard Proctor Curve for soils used for compacting the clay liner in holding pond P14; Terracon report 07082013.00078 shows Atterberg limits and a Moisture-Densisty Standard Proctor Curve for soils used for compacting the clay liner in holding pond P14; Terracon report 07082013.00079 shows Atterberg limits and a Moisture-Densisty Standard Proctor Curve for soils used for compacting the clay liner in holding pond P14; Whitney & Associates reported tests for Atterberg limits, standard proctor, grain size distribution and remolded permeability test on clay liner candidate material from the bottom of holding pond P17, three permeability tests taken on the compacted clay liner of holding pond P14 with thin walled Shelby tubes. We have no porosity tests and do not understand what is intended by your question on porosity estimates. We believe that for the intent of your question that hydraulic conductivity tests are essentially the same as the coefficient of permeability tests that we have provided.

17. **Please clarify the operation and maintenance procedures that will be used to prevent leakage from all wastewater containment. Storage, and treatment structures, including holding ponds, reception tanks, lift stations, and the digester.**

Response:
See "IL DNR-OWR Operation and Maintenance Plan" previously provided. This plan will be followed for all of the holding ponds including the clay liner on the interior slopes and the pond bottoms. The "Tradition South Dairy Operation and Management Plan" previously provided will also be followed for details list of maintenance and inspection procedures. All containments, treatment and storage structures will be maintained to

prevent leakage. Weekly inspections are to be provided. Each of the holding ponds have six (6) ramps with pads to be used during pumping and agitation to protect the compacted clay liner (see construction plans previously provided). Please see revised Tradition South Dairy Operation and Management Plan.

18. **Please identify any land application site to be used by Traditions South that is known to include karst topography. For each such site, please model the field hydrology to estimate deep drainage responses for actual soil types and planned crops and application rates tor the site.**

Response:
There is no known karst topography within the land application areas planned to be used by Traditions South.

I certify under the penalty of law that I have examined and am familiar with the information submitted in responding to this information request for production of documents. Based on my review of all relevant documents and inquiring of those individuals immediately responsible for providing all relevant information and documents, I believe that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Date: _____

_____
Signature of Member Manager

Exemption (b)(6) _____
Printed Name of Member Manager

cc: Exemption (b)(6), Tradition Investments, LLC
Terry L. Feldmann, Maurer-Stutz, Inc.